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LXXIV. *Accounts of the Irregularities of the Tides in the River Thames, on the 12th and 13th of February, 1756. Communicated by Robert Dingley, Esq; F. R. S.*

S I R,

Read Mar. 4, 1756. **A**ccording to your desire, I shall set down in writing the variations, that happened in the tides the 12th and 13th of last month, according to my own observation, and from others of whom I enquired; *viz.*

Thursday Feb. 12, the time of high-water at London-bridge that day was about half after eleven, and flowed no higher at Westminster-bridge at high-water than the low-water is, at times when extraordinary land floods are out, and the wind to the Northward. The wind during the whole flood was at W.S.W. and blew hard.

On the 13th it was high-water at London-bridge rather before one o' clock, and continued ebbing till four, when the water was gone from the Custom-house-wharfs, where I was with a merchant's clerk, consulting how to get some goods aboard my craft, in order to send them down to the ship, my servant having neglected to put my boat under the crane before the water had left the wharf. During this parley, the water most unexpectedly flowed again directly; and without that extra phænomenon setting my boats afloat, it would have been impossible to have shipped the goods that day, being seven large bales and twenty thousand ounces of silver.

During

During the time of the water flowing, the strength of the current going down was greatly abated, almost to a slack ; the water below the sterlings was almost on a level with that above; by which I conjecture, that the water flowed near three feet perpendicular. My boat of nine tuns burden being loaded, and drawing near two feet water, being put off into the stream, I went down to the Hermitage, where another of my servants was loading a lighter of hemp, and observed as I went along, that the water began to ebb from the shore. Having stayed there about half an hour, to give the necessary directions to my servants, I went to take a walk ; for which I am extremely sorry, as I missed observing with due attention this extraordinary variation. All my servants agree, that by their observations, though not over exact, when the water had only ebbed about two feet, it flowed again to the same height as before.

One John Hare, a waterman, told me, that as he was going in his boat to Woolwich, to his great surprise he met the flood in Greenwich-reach, and afterwards to Bugby's-hole, and got to Woolwich a considerable time before low water ; which intirely agrees with what my servants and other watermen who were at work remarked, that it flowed twice in the time of ebb, as it ought to have done, had it been regular ; and had it been regular, it would have ebb'd till near nine that evening ; instead of which the real flood came about a quarter before seven, and continued flowing till one after midnight, without any apparent current, till twelve, which prevented my servants, and partner with them, bringing

ing the craft upwards to their destined places, and as soon as the tide pinched, the ebb came down at once.

I apprehend, that as the floods were remarkably weak for several days, and the water of a yellow colour, great rains had fallen in the West-country, tho' we had none here sufficient to produce such effects. And what is more extraordinary to me, is, why the highwater should be so remarkably low, if there had been land floods, especially on the 13th and 14th, when the wind was from W.N.W. to N.W. which generally brings in the flood sooner, and makes it flow higher; tho' it partly accounts for the evening tide. On the 13th no observation was or could be made above London-bridge on the 13th, by reason the water never flowed to a level with the water above. I am,

S I R,

Your most obedient servant

*Copy of a Letter on the same subject, from Captain William Mitchel. Dated Hermitage Five o'clock, 12 Feb. 1756.*

S I R,

**T**HE difference between the last tide and a common neap tide was four feet; and betwixt it and the common stream about nine feet perpendicular; betwixt it and a very high tide in last November, above ten feet. The carpenters and labourers in the dock-yard, from whom I had this

in

intelligence, say, they never knew, in forty to forty-five years observation so low a tide, by full two feet; you may depend on the winds having been stronger to the S.W. below than here.

William Mitchell.

*To the Rt. Hon. George, Earl of Macclesfield, President of the Royal Society.*

My Lord,

Read Mar. 11, 1756. IN obedience to your lordship's commands, I have informed myself more particularly what Hare the waterman related, concerning the late irregularity of the tide, in the paper I had the honour to lay before the Society last Thursday, which is as follows.

That Hare going down the river the 13th past with the current, he met an unexpected slack in Greenwich-reach. Soon after, as he proceeded, the current regained its force; but about three miles lower, in a reach called Bugby's-hole, he met again another flow or slack water; and before he got to Woolwich, which is about three miles lower, the current regained its force, and continued running down some time after; whereas, according to the tides, had they been regular, it ought to have been low water before the time he got to Woolwich.

By enquiring more circumstantially relating to this phænomenon, that as the wind then prevailed pretty strong at W.N.W. and N.W. in all probability the wind might make a sudden shift, which caused these sudden impulses or eddies: but this I submit to your

Lordship's superior judgment, being with all possible respect,

My Lord,

Your Lordship's most obedient

humble servant,

London, Mar. 8,  
1756.

Robert Dingley.

**LXXV. *Thoughts on the Reverend Dr. Hales's new Method of Distillation by the united Force of Air and Fire. By William Brownrigg, M. D. F. R. S.***

To the Rev. Dr. Hales, D. D. F. R. S.

Dear Sir, Whitehaven, Dec. 3, 1755.

Read Feb. 26, 1756. **I**Duely received the favour of your letter, written so long ago as the latter end of May last; containing an account of your important discovery of raising large quantities of water by the united operation of air and fire, in your new method of distillation. In obedience to your commands, on the receipt of your letter, I immediately set about considering to what uses your ingenious invention might be applied, besides the great one of supplying navigators with fresh water; and shortly after wrote out the inclosed paper relating to the improvement